Patent Claims

1. A tube of synthetic silica glass for producing a preform, which has an inner bore with a surface layer produced without tool-contact in the molten state, an outer cylinder wall, and an inner region extending between inner bore and outer cylinder wall, characterized in that the surface layer (30) has a thickness of 10 µm and a mean OH content of not more than 5 wtppm and an average surface roughness R_a of not more than 0.1 µm therein, and that the inner region (34) which starts on the surface layer (30) and terminates 10 µm before the outer cylinder wall has a mean OH content of not more than 0.2 wtppm.

2. The silica glass tube according to claim 1, characterized in that the mean OH content in the surface layer (30) is not more than 1 wtppm.

3. The silica glass tube according to claim 1 or 2, characterized in that the mean OH content in the inner region (34) is not more than 0.1 wtppm.

4. The silica glass tube according to any one of the preceding claims, characterized in that the synthetic silica glass is doped with a dopant in the form of fluorine, GeO_2, B_2O_3, P_2O_5, Al_2O_3, TiO_2, or a combination of said dopants.

5. A method for producing a tube of synthetic silica glass in a vertical drawing method in that a silica glass mass is continuously supplied to a heating zone and softened therein and a tube strand is continuously drawn off from the softened region and a scavenging gas is circulated through the inner bore of said tube and a silica glass tube is obtained therefrom by cutting to length, characterized in that a scavenging gas (23) having a water content of less than 100 wtppb is used, and that the front end of the tube strand (19) is closed by a flow obstacle (26) which is permeable to the scavenging glass and which reduces the amount of the scavenging gas (23) flowing therethrough.

6. The method according to claim 5, characterized in that a scavenging gas (23) is used having a water content of less than 30 wtppb.

7. The method according to claim 5 or 6, characterized in that the flow obstacle (26) is formed by a plug which projects into the inner bore of the tube strand and which narrows the cross-section of the freely flowing scavenging gas (23).

8. The method according to claim 6 or 7, characterized in that the flow obstacle is produced by a gas curtain acting on the front end of the tube strand.

9. The method according to any one of the preceding method claims, characterized in that the silica glass mass is provided in the form of a hollow cylinder (2) which, starting with its front end, is continuously fed to the heating zone (1) and softened therein in portions, and the tube strand (21) is continuously drawn off from the softened region, the hollow cylinder (2) being elongated to at least 5 times its initial length.

10. The method according to claim 9, characterized in that the hollow cylinder (2) is elongated to at least 20 times its initial length.

11. The method according to any one of the preceding method claims, characterized in that the scavenging gas (23) contains a gaseous drying agent, particularly a chlorine-containing gas.

12. The method according to any one of the preceding method claims, characterized in that the scavenging gas (23) is subjected to a drying process before being introduced into the inner bore (4) of the tube strand.

13. The method according to any one of the preceding method claims, characterized in that the volume flow of the scavenging gas (23) through the inner bore (4) is not more than 80 l/min.

14. The method according to any one of the preceding method claims, characterized in that an external scavenging gas (24) flows around the outer cladding of the tube strand (21) in the region of the heating zone (1), the water content of the scavenging gas (23) being lower by at least the factor 10 than that of the external scavenging gas (24).

15. The method according to any one of claims 6 to 13, characterized in that an external scavenging gas (24) flows around the outer cladding of the tube strand (21) in the region of the heating zone (1), the scavenging gas (23) being used as the external scavenging gas (24).

16. The method according to any one of claims 14 or 15, characterized in that the external scavenging gas (24) flows around the outer cladding of the tube strand (21) at least for such a long time that said strand is cooled down to a temperature below 900°C.

17. The method according to any one of the preceding method claims, characterized in that the silica glass tube is subjected to an OH reduction treatment at a temperature of at least 900°C in a water-free atmosphere or in vacuum.

18. The method according to claim 17, characterized in that the OH reduction treatment includes a treatment in deuterium-containing atmosphere.

19. Use of the silica glass tube according to any one of claims 1 to 4 or of the silica glass tube produced according to the method according to any one of claims 5 to 18, as a substrate tube for internal deposition of SiO_2 layers in an MCVD method.